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LABOR ADMINISTRATION IN THE SHIPBUILDING INDUSTRY DURING WAR TIME. II

III. THE FUNCTIONING OF THE ORGANIZATIONS UPON PROBLEMS

Like practically every governmental agency, the system of shipyard labor administration was just getting into its stride when the armistice was signed. Early mistakes were being remedied, and a thorough and comprehensive machinery had just been set up. But relatively short as was the period in which the work was performed, the functioning of the organizations upon the various problems can be studied and stated with a fair degree of accuracy.

I. WAGES

The wage question was perhaps the most perplexing problem with which the Emergency Fleet Corporation dealt. Increases, it should be realized, were granted, not only by the Shipbuilding Labor Adjustment Board, but by the Corporation itself. In May, 1918, the Corporation granted certain increases to salaried employees who earned less than \$2,000 a year, since the Board had made no provision for these grades. Increases for leading men, quarter men,¹ and foremen, who had been omitted by the Board, were also granted, in order that these classes might receive a wage in reasonable balance with the wages of the men employed under them. The Fleet Corporation, however, did not grant further increases in the fall of 1918, because of the signing of the armistice and the probability of a plentiful labor supply.

It has always puzzled the man in the street how the Adjustment Board and the Fleet Corporation were enabled to order these increases to be paid, and by what power they compelled the shipbuilders, who were not themselves parties to the memorandum creating the Board, to comply with their decisions. The answer is

¹ By leading man is meant the foreman of a group of 10 to 18 workmen; by quarter man, the foreman of a group of 24 to 30 workmen.

very simple. The Fleet Corporation was enabled to make these awards effective only by promising to reimburse the shipbuilders for any added labor cost, occasioned either by the decisions of the Board or by the instructions of the Corporation.

It must not be thought, however, that this policy of reimbursement was adopted immediately and uniformly. It was indeed uncertainty over this very question in the fall of 1917 that delayed the organization of the Board. For months after the first decisions it was the practice to grant reimbursement only when the companies made urgent pleas, and not to grant it to companies who entered no claim. Until June 1, 1918, there was no uniform method of granting this reimbursement. Each case was settled by itself, and no common accounting practice in computing or paying the reimbursement was followed. The shipbuilders were compelled to struggle for what they got, and many who were in ignorance of the situation did not ask for any reimbursement at all. The situation became so unsatisfactory that on May 31, 1918, the Fleet Corporation issued a lengthy General Order outlining a uniform policy to be followed in computing any paying for the increased labor cost.¹ This was followed by a series of General Orders which covered further points.

It was, however, one thing to establish wage rates and another to enforce them, and it was their enforcement that occasioned the greatest difficulty and unrest. The violations were of two main types:

a) Neglect on the part of shipbuilding companies to pay workmen back pay due them. This was a provocative cause of dissatisfaction. The Adjustment Board made all of its major decisions retroactive to varying dates. The computing of this back pay was difficult, and the shipbuilding companies were very slow in complying with the orders of the Board and the Fleet Corporation. In September, 1918, some of the yards in the Columbia River district had not paid the retroactive increases granted in the November, 1917, decisions. The conditions were also unsatisfactory in several other districts. This failure promptly to pay retroactive increases had the inevitable result of arousing the ire

¹ This was the much-consulted General Order 36.

of the men, and making them impatient with the whole system of wage administration.

b) Violations of the established rate. This type of violation was even more common, and was basically more important, than the former. The two memoranda which created the Board were drawn up in the period when it was thought that the chief purpose in fixing the wage scale was to protect the standard of living of the workers against the increase in prices. It was therefore originally intended to make the wage scale fixed by the Board merely a minimum. Both memoranda term the wage rates which the Board was to fix as "basic standards." The accepted interpretation of this phrase is that the rates established are to be minima below which no member of a craft can be paid, but above which individual workers can receive a higher wage through superior ability or by the process of individual bargaining. A strike on the part of the union, however, to obtain a higher basic wage for all members of the craft would constitute a violation of the agreement and a breach of faith. The Board in every one of its first set of decisions explicitly stated that the rates were minima.

During the first few months some violations were complained of where companies were refusing to pay as high wages as the Board had ordered, or where they were classifying the men in lower grades with lower wages than those to which the workmen rightly belonged. The Corporation promptly remedied such conditions.

In the late winter and early spring of 1918 another significant development occurred, which was caused partly by the drain upon the nation's man power, following upon the expansion of the army. A decided shortage in labor became apparent, which was especially acute in some of the more skilled trades, such as coppersmiths, chippers and caulkers, riveters, machinists, blacksmiths, etc. There was, moreover, a very considerable shortage of common labor, which became more acute after the heavy draft quotas of the late spring and early fall of 1918.

Each contractor was desirous of completing his contract and was therefore eager to get a sufficient number of men. He was consequently willing to pay more than the fixed scale in order to get the men. The situation became especially acute in the Pacific

Northwest, where the wage scale in one of the largest shipbuilding plants and in many of the outside shops had always been higher than that set by the Board, even when the 10 per cent bonus of December, 1917, was added. The result was a competitive bidding for labor. Workmen moved about from plant to plant, and the stability of labor was seriously threatened. The production program was hindered, for men who were needed on the job were rushing about from plant to plant on railroad trains. The Fleet Corporation tried to check this by refusing, on June 1, 1918, to reimburse shipbuilders for any wages paid in excess of those fixed by the Board. This was strengthened by a General Order, issued July 1, 1918, making the established scale a maximum and prohibiting employers from exceeding it. It should be emphasized that it was the Fleet Corporation and not the Adjustment Board that issued these orders which established the Board's rates as maxima, although the Adjustment Board unofficially approved.¹

These orders² of the Corporation were followed in the majority of cases, but in at least two sections of the country they were disregarded. As has been stated, the situation in the Seattle district had always been unsatisfactory, and in order to hold their labor many yards raised their wages to a point far in excess of that set by the Board, until the situation was one in which practically 75 per cent of the men were receiving more than the authorized wage. The piecework trades along the Atlantic Coast were also paid at a higher rate than that authorized, owing to the permission of the Board to use the "allowance system" on difficult work. This was originally intended to apply only to work which was so difficult that piece rates would be unfair, and it was not intended to cover more than 10 per cent of the operations in the pre-war

¹ This was sometimes forgotten even by members of the Board itself; thus Mr. Macy in blaming Seattle shipyard employers states that they "violated all orders of the *Shipbuilding Labor Adjustment Board* and the Emergency Fleet Corporation by paying wages far in excess of the scale authorized."—*National Civic Federation Review* (February, 1919), p. 2. Italics are mine.

² To prevent shipbuilders constructing for private account from disrupting the labor market all yards of this group were compelled to obtain a permit from the Corporation, binding themselves not to exceed the authorized scale. The legal sanctions behind this requirement were (a) power to requisition ships, (b) withholding priorities on materials, etc.

times. The shortage of workers, however, was such that most of the Atlantic Coast companies abused the use of the "allowance system" and applied it to nearly all of the piecework, whether it was difficult or not. As a result many of the riveting gangs were granted from \$25 to \$60 a day, irrespective of the number of rivets driven, and great abuses resulted. This was indeed not finally checked until February, 1919.

A further method of violation was the improper classification of workers by shipbuilding companies. It was not an unknown practice to list workers under classifications with higher rates of pay than were actually deserved. Some yards listed mechanics as leading men, quarter men, or foremen, and thus paid them a higher wage without ostensibly violating the orders of the Corporation. In several yards there were in some trades more foremen than men, while in one yard there were actually thirteen foremen and two men in a particular trade!

The violation of the wage scales was caused not only by the scarcity of labor but by the existence of cost plus contracts. The number of these contracts was not so large as has been commonly supposed and indeed decreased as time went on, but many of the wood-ship yards and a few of the steel yards were on this basis. The inevitable result of these contracts was, of course, to make the contractor less careful of his labor costs. Although there were only a few such yards, their influence was widespread, since they set a pace which other companies felt that they must meet in order to hold their labor force.

In addition, the accounting procedure set up by the Fleet Corporation to cover reimbursement for increased labor cost was cumbersome and involved, and the auditing division was not organized as effectively as it might have been. Prior to the signing of the armistice most of the companies which had paid rates in excess of the authorized scale were reimbursed for all their labor costs and even for their violations. True, the government will not necessarily lose on these reimbursements, for final settlements were not made, and steps have since been taken to protect the Treasury against improper wage-cost claims. Nevertheless the temporary adjustments which sometimes covered improper claims played their part in unsettling labor conditions.

The "excessive" wages which many complained that the shipyard workers were receiving, when they did actually occur, did not result from the decisions of the Adjustment Board, which merely adjusted wages in keeping with the increase in the cost of living,¹ but were caused either by the competitive bidding of the employers in giving higher wages than those awarded in order to attract workmen to their particular contract or by the practice of excessive overtime.

In spite of what has been said, it is, however, undoubtedly true that in the majority of cases the Adjustment Board's rates were both maxima and minima, and that consequently standardization of wages was roughly effected.

After the signing of the armistice, as will be stated later, the Fleet Corporation suspended making the Board's rates maxima, although of course it refused to reimburse ship contractors for wages in excess of the Board's scale.

2. HOURS

The basic 8-hour day was uniformly established in the shipyards as the standard working-day. Due to a previous custom of a Saturday half-holiday in the Delaware River district the basic 44-hour week was established there. Overtime was paid for at the rate of time and a half for all districts save the Pacific Coast, where it was paid for as double time. Sunday and holiday work was universally paid for at double rates. The Labor Adjustment Board fixed no limits as to the amount of overtime that could be worked in the Pacific Coast districts, but in their other decisions they prescribed a maximum working-day of 12 hours and a maximum 60-hour working-week, except at the order of the Fleet Corporation or Navy Department.

The overtime bonuses increased rather than decreased the length of the average working-day. The men were anxious to receive the extra pay for overtime, and the managements were willing because they could charge the expense to the Fleet Corporation. Owing to an egregious blunder by one of the construction divisions of the

¹ The Board increased wages on the Pacific Coast approximately 60 per cent over the 1916 rates. This was not excessive in view of the increase in the cost of living.

Corporation, certain shipyard owners were even paid to July 1, 1918, an additional bonus of from 25 per cent to 160 per cent on every dollar that the workmen received for overtime.¹

A better system to encourage overtime could not have been devised. General Manager Piez was constantly exerting pressure to reduce the amount of overtime, but up to June 1 there were no definite orders issued as to the amount which would be allowed, and the district managers of the Corporation were given a great deal of discretion. On June 1 the amount of overtime was fixed at a maximum of 2 hours per man per day "except under extraordinary and special circumstances."

The results of overtime work were, of course, lamentable. Not only was it on the whole inefficient, but there were cases where men loafed during the first 8 hours in order that they might have an excuse for working overtime. It furthermore directly increased absenteeism. Some men would work Sunday at double time and then lay off a day during the week, thus getting their day's rest and receiving seven days' pay for six days' work. It also made many of the rank and file reluctant to have more men added to the working force, since it decreased their opportunities for overtime.

The labor leaders themselves recognized the viciousness of overtime, as did the employers after their premium upon it was taken away, and representatives of both parties from the Pacific Coast recommended that it be entirely prohibited except during cases of urgent necessity. It was not until after the signing of the armistice, however, that the Fleet Corporation issued an order specifically putting the work on an 8-hour day and abolishing overtime. Several small groups of workmen then struck because they were prevented from working more than 8 hours a day.

The whole experience with the basic 8-hour day and the overtime bonus during war time was such as to demonstrate conclusively that the basic 8-hour day on contract work for the government really conduces to a long working-day. The men are more eager to

¹ The reason assigned for granting this bonus was that the efficiency of the yard was decreased by working overtime, and that the management should be rewarded for this loss. This is an eloquent bit of testimony to the necessity of centralizing the control of labor matters in one department under competent guidance.

receive the overtime bonus than they are to limit their work to 8 hours, and "loafing on the job" is the result. Since the government foots the bills the managements do not have the objection to overtime work that they would have if they were compelled to pay. There can be little doubt that the Fleet Corporation lost millions of dollars by reason of this practice, and it seems clear that a better arrangement would have been to establish a flat 8-hour day and to have permitted no overtime save in cases of an emergency and at the express permission of the Corporation's representatives.

3. UNIONS, SHOP COMMITTEES, AND COLLECTIVE BARGAINING

The creation of the Shipbuilding Labor Adjustment Board was in itself a recognition of the international unions and collective bargaining. The Fleet Corporation dealt with the union officials as representatives of labor, and the policy pursued by the Corporation and by the Board itself was such as to encourage collective bargaining.

The policy of the Board and the Fleet Corporation toward the "closed shop" was really that of refusing to disturb the *status quo*. The Board refused to permit shops to be closed against the will of the employer, if they had not been closed prior to the war. Where the closed shop had existed, as in the San Francisco and Puget Sound districts, it was continued.

The Board declared that discrimination should not be practiced against any workman either on the ground that he belonged, or on the ground that he did not belong, to a union. This was enforced by the Fleet Corporation, and many men who had been discharged or forced from employment were ordered to be reinstated. It was, of course, impossible to enforce this perfectly, because of the difficulty in determining the real causes for dismissal.

The principles promulgated by the War Labor Conference Board¹ were adopted by the Fleet Corporation as its labor policy, and it therefore permitted the organization of the workers into unions and protected from discharge the men who joined. It is

¹ The War Labor Conference Board afterward became by presidential appointment the War Labor Board.

difficult to measure the growth of unionism among the shipyard workers, but there can be little doubt that the unions made great gains in membership, and that they emerged from the war far stronger than when they went in.

One of the striking acts of the Board was the authorization of shop committees to handle grievances. This was first provided for in the Portland district, where the employers refused to recognize the unions as such. It was later authorized for all other yards, save in the Seattle and San Francisco districts.¹ The establishment of these shop committees was really intended to provide non-union collective bargaining and adjustment of grievances in those yards which would not recognize unions. Although many of these committees were organized, they cannot be said to have been a success, in actual operation, except in one district.

In one district, for example, not many of the yards had definitely constituted committees, with regular periods of meeting, nor were all crafts within the yards organized. The committees in this district did not consider more than 20 per cent of the complaints which arose, and the other 80 per cent were taken up with the examiner himself either by the business agents of the unions or by the direct appeal of the parties interested.

The chief reasons for the failure of these committees to function were as follows:

a) The lack of active organization upon the part of the Shipbuilding Labor Adjustment Board. The Board authorized the organization of the committees, but for a long time did little else. Only one of the examiners devoted much attention to organizing these committees. Moreover, when the committees were organized they were not always given proper facilities for conducting business.

b) The indifference of the workers. The men were busy and were earning good wages and did not take much interest in organizing the committees.

c) The more or less open hostility of the unions. The unions were afraid that the committees would usurp their functions, and that they could be used to break down the unions. This was not

¹ Although authorized for the Delaware River district in the October 24, 1918, decision, no shop committees were set up there because of the complications with the unions that might result.

wholly unjustified, since in some cases the employers attempted to control the election of the committeemen. Perhaps the most important point about the organization of shop committees is as to whether they will be a substitute for, or a supplement to, unionism.¹ The unions have been loth to approve of them until they were convinced that they were intended to be the latter and not the former.

4. LABOR SUPPLY

The Fleet Corporation officials at first regarded the securing of materials as the most pressing production problem; but after this had been centralized in a Supply Division the securing of sufficient labor became the most urgent problem. It was the question whether enough men could be brought into the shipyards and trained that most agitated shipbuilders during 1918. There were really two problems of labor supply: (a) that of securing a sufficient number of men for the industry as a whole; (b) that of distributing this labor so that all yards could have an adequate amount. Table I shows the number of men working in the shipyards. One must first ascertain how many men were needed to carry out the production program before estimating whether the industry as a whole had a sufficient labor force. This can now be done with some accuracy, but it was very difficult formerly, for the Shipping Board never furnished the Fleet Corporation with a program to be attained. The chairman of the Board at Congressional hearings and in public speeches set varying figures. The 1918 program of deliveries for steel ships was set by various authorities at 6,000,000 and 4,000,000 tons. This was later scaled down to 3,100,000 tons by the production engineers of the Fleet Corporation. As for wood ships, there was never a real production program. Contracts were let more to fill the ways than with a view to a comprehensive and well-thought-out policy.

Since only 2,600,000 tons of steel ships were delivered in 1918, the steel-ship shortage was consequently 500,000 tons.² Since the

¹ See the statement by Mr. Macy, the chairman of the Board, "Shop Committees must not be regarded as a substitute for the unions."—*National Civic Federation Review* (February 15, 1919), p. 2.

² That is, if 3,100,000 tons is taken as the goal to be attained. It is a great deal below the early estimates of 6,000,000 tons.

average production per man-year was approximately 25 dead-weight tons (which is a fairly creditable production record) the average shortage of labor in the steel yards during 1918 seems to have been around 20,000. The adequacy of the wood-ship labor force is difficult to judge, since there was no program with which to compare it. It is unquestionably true, however, that there were as many workmen employed as the value of wooden ships as ocean carriers justified. On the whole, therefore, while there was a shortage of labor in the steel yards, this shortage was not as acute as was maintained at the time.

TABLE I
GROWTH OF THE LABOR FORCE ON E.F.C. WORK IN SHIPYARDS BY MONTHS

Month	Average Number of Employees in Wood-Ship Yards on E.F.C. Work	Average Number of Employees in Steel-Ship Yards on E.F.C. Work	Total Employees in Shipyards on E.F.C. Work
1917			
October.....	12,000 (est.)	76,000 (est.)	88,000 (est.)
November.....	17,000 (est.)	103,000 (est.)	120,000 (est.)
December.....	21,000 (est.)	125,000 (est.)	146,000 (est.)
1918			
January.....	31,000	160,000	191,000
February.....	38,000	166,000	204,000
March.....	47,000	181,000	228,000
April.....	58,000	200,000	258,000
May.....	70,000	211,000	281,000
June.....	77,000	237,000	314,000
July.....	81,000	251,000	332,000
August.....	85,000	267,000	352,000
September.....	91,000	280,000	371,000
October.....	91,000	284,000	375,000
November.....	86,000	299,000	385,000

These statistics do not include those employed in plants devoted exclusively to fitting out hulls after launching. They do include, however, some clerical employees (not more than a few thousand in number) who should be charged to construction work for the navy.

The total number of employees listed in the table should not be confused with the number of men actually engaged in shipbuilding. In January, 1918, only 63.7 per cent of the employees were shipbuilders, while 26.4 per cent were engaged on plant construction, and 9.9 per cent were office employees. Indeed, until May over 20 per cent of the men were working on plant construction. By October the percentage in shipbuilding had increased to 83.8 per cent of the total force, and the percentage on plant construction had decreased to 7.7 per cent.

Despite the difficulties of drawing men to a new and exposed industry, where transportation and housing facilities were often

overcrowded and inadequate, the recruiting of the men for the industry as a whole was accomplished without elaborate administrative organization by the Fleet Corporation itself. The one organization which was started, namely the United States Shipyard Volunteers, was conceived and managed by the Shipping Board and the United States Department of Labor rather than by the Fleet Corporation officials. The 280,000 men who were enrolled in this organization were listed without proper investigation of their qualifications or as to whether they were engaged in other essential industries. Once enrolled, they were not called upon; for preference in employment was given to those who were unemployed over those enrolled in the Shipyard Volunteers. The men had expected that they would soon be called to service in the yards, and many gave up their jobs. The management of the Shipyard Volunteers, however, did not follow up the campaign of enrolment and did not work out with the shipyards any concerted plan whereby the labor requirements of the yards might be ascertained and men furnished to them.

After August 1, of course, the shipyards were compelled to hire all of their unskilled labor through the United States Employment Service. Skilled labor could, however, be hired through private agencies, and the labor scouts of the shipyards themselves were in most cases merely supervised by the Employment Service and allowed to act for their individual companies in the securing of both skilled and unskilled labor.

The movement of labor to the yards was therefore voluntary and in the main unorganized. The facts which enabled the shipbuilding industry to obtain in this way the 300,000 men were principally the following:

a) Higher wages than those paid in the majority of other industries. As has been stated, the Adjustment Board and the Fleet Corporation itself sought to make shipyard wages higher than the average wage level in order to draw men to the yards. A substantial differential was, on the whole, created. In certain sections of the country, however, the wage scale in outside industries for some classes of labor caught up with and even surpassed that of the shipyards. On the Pacific Coast much difficulty was

experienced in retaining common labor in the shipyards, since lumber camps and other occupations were paying more for common labor than the wage scale fixed by the Board. Late in the summer of 1918 the same situation with respect to common labor prevailed in the Middle Atlantic states.

This attempt of the Board to fix higher wages than those in other industries was probably justified because of the urgency of the need for ships and the necessity of getting men to build them. The men thus attracted were, however, not only drawn from non-essential but from essential industries as well and the whole situation illustrated the necessity for a general standardization of wages which undoubtedly would have been effected had the war continued for a few months longer.

b) Patriotic desire of men to assist the government. The need for ships was widely advertised, and many thousands of men went to the shipyards in order to help "do their bit."

c) Protection against draft. Under the selective-service law the general staff created an "Emergency Fleet" listing, whereby, in addition to the ordinary industrial exemption granted to all essential industries, additional men could be protected from the draft and the labor force constantly stabilized. Some 90,000 workers in the 800 shipyards and industrial plants having contracts with the Fleet Corporation were thus exempted from the draft under this form. Thus both patriotic reasons and the desire to escape military service operated to bring men to the yards and to keep them when they were once there.

d) Payment by the Fleet Corporation of the transportation expenses of workers to the job. In order to facilitate the movement of men from inland points to the shipyards, the Fleet Corporation entered into an agreement with the United States Employment Service early in the winter of 1918 to pay the transportation of labor to the yards. This free transportation was not administered very efficiently by the Employment Service, and moreover it operated directly to increase the turnover of labor, because men could leave one job and go to another at the expense of the Fleet Corporation. One man traveled back and forth across the continent three times at the expense of the Corporation. Just before

the conclusion of the armistice a system of control had been set up which promised to handle the matter. After the armistice was signed this payment, of course, was discontinued.

While it is probably true that, taken as a whole, the yards of the country had nearly a sufficient labor supply, it is just as true that this supply was poorly distributed. Many yards had so many men that they could not be directed efficiently, and men were compelled to remain idle because of lack of work which they could do. The early days of the Hog Island and Submarine-Boat projects were but lurid examples; the same situation existed, though in a lesser degree, in many other yards.

There were, on the other hand, other yards which were greatly undermanned, and the causes for the dearth of labor in these yards were primarily three:

a) The individualistic attitude of the shipyard managements whereby each contractor was concerned only with his own contract. It was the common practice of shipyards to attempt to recruit labor not only from industries other than shipbuilding but from other shipbuilders as well. Sometimes this was done directly, and employees of another company were "scamped" by labor scouts who promised the men higher wages, more overtime, better housing, and a score of similar inducements. Sometimes it was done indirectly by advertisements stating supposedly superior advantages.

The labor forces of many shipyards were crippled by this "scamping" of labor, and shipbuilders often seemed more interested in stealing labor from other companies than they were in retaining the supply that they had.¹ The employers who were most conscientious and refused to "scamp" were those who were penalized. The result of this individualistic attitude was an enormous loss in productivity due to the loss of time in the shifting of labor and the impossibility of maintaining a stable force.

b) Competition for labor by other government departments. A number of yards lost their men because other nearby government industries were paying higher wages than the yards could pay.

¹ One enterprising labor scout is reported to have promised a group of shipbuilders on the street higher pay than they were then receiving, only to discover, after he had taken them to work, that they were already employed at his own yard!

c) Unattractiveness of certain shipyards and inefficient management. Wherever poor housing, inadequate transportation, and unsanitary and dangerous conditions existed men were loth to stay. This was heightened in many cases by the inefficient management of the plants, which made men discouraged and disgruntled. Thus inefficient management was a cause both of some yards having too much labor and of other yards having too little.

It has been said above that the Fleet Corporation did not perfect an elaborate organization to deal with the problem of labor supply. A short time prior to the signing of the armistice, a Labor Supply Section was created in the Industrial Relations Division to deal with the matter. This section did not have sufficient time to demonstrate its usefulness, but it probably would have served to stabilize the situation and would have aided in supplying the additional men that would have been needed had the war continued. This section had perfected a system whereby the labor needs of the shipbuilders might be ascertained, and was devising methods whereby the labor could be supplied to the yards. It was indeed getting ready to allocate labor in much the same way in which the Supply Division had allocated materials.

The most important task which the Labor Supply Section actually undertook was its canvass among the demobilization camps. Agents were placed in the thirty demobilization camps of the country to spread information about shipyard work to the soldiers, although work was not guaranteed to anyone. The names of the soldiers interested were filed, and the shipyards were then furnished with the names of men in their vicinity and put in touch with the returning soldiers.

5. EMPLOYMENT MANAGEMENT

Prior to 1918 only thirteen shipyards had employment departments in any organized form. Yet as the war progressed the problem of increasing ship production, with a steadily decreasing supply of workmen in industry, required shipbuilding managers to give special attention to securing, placing, and maintaining a competent and adequate force of workers. It has been found that in many

cases the greatest handicap to production is not the scarcity of men but the attempt to choose and retain employees without careful thought or plan. Accordingly the Industrial Service Department of the Fleet Corporation at first conducted pioneer educational activities to promote the establishment and improvement of properly functioning employment departments. The Employment Management Branch of the Industrial Relations Division later co-operated with certain universities in training employment managers, provided the shipyards with detailed plans for employment departments to meet their respective needs, and assisted in placing employment managers and assistants as openings for them developed.

The more tangible results of this work may be indicated. In addition to correspondence, conferences, printed manuals, and organizing employment managers' associations, surveys of employment methods were made in fifty-two yards. Direct assistance was given in improving their procedure and in planning fourteen employment and service buildings. Standard forms on employment procedure, handling labor loss, physical examinations, labor adjustment, and other approved practices were prepared and made available to all yards. Forty-one representatives of shipbuilding companies took the employment-management courses. Twenty-nine men were also trained as reserve employment managers, and from these twenty-three were placed as employment and service managers and assistants. New centralized employment departments were established in twenty-one shipyards.

These various improvements have probably contributed to the stabilization of labor employed in shipbuilding. Complicating factors due to the unsettled industrial conditions of war time, especially aggravated in the expanding shipbuilding industry, enter into the situation and prevent a fair comparison of different periods as to the stabilizing effects of proper methods of employment management. No conclusions, therefore, are deducible from the chart of the percentage of labor turnover, given later in this article, as to the effect of improved employment procedure on turnover. Further experience alone can provide data upon which to base reliable deductions.

6. THE TRAINING OF MEN

The mere addition of 285,000 men to shipyards did not solve the problem of building ships. A large percentage of these men had to be trained. In November, 1917, this work was organized and two methods were adopted, (a) that of training skilled shipyard craftsmen to become instructors, and (b) that of using these instructors as teachers of green men upon the job in the shipyards to which they returned.

Thirty-seven training centers for the training of instructors were established, covering all sections of the country. Approximately 1,100 instructors were given the six-weeks training course, the aim of which was to enable them to teach what they already knew. The men who had been given the instructor training returned to the seventy-one yards from whence they had been sent and started to train workmen on the job.¹

These training courses in the shipyards were brought under the control and supervision of the Fleet Corporation by an ingenious \$1.00-a-day bonus given to those yards with properly established training departments, which was to be shared equally between learner and employer if the learner should stay in the employ of the yard for seventy-eight days.

Of the 285,000 which were added to the shipbuilding rolls from October, 1917, to October, 1918, it is probable that one half went into types of work for which little or no training was required. The remaining half, or approximately 140,000 in all, did need training. How far was this need met by the training system which was set up by the Fleet Corporation? Careful estimates made by the Education and Training Section indicate that the 1,100 instructors trained approximately 80,000 men, or about 57 per cent of all that needed training.

It was possible to do this because it was found that men could be trained for shipbuilding trades in a relatively short period of time. Statistics from twenty-one yards indicate that the average training period for all men was nineteen days.²

¹ All but three of these were steel-ship yards. The system of training was not adopted by wood-ship yards to any extent.

² I am indebted for these statistics to Mr. E. E. MacNary, head of the Education and Training Section.

Table II shows the length of training period by trades. When the learners left their training course they were able in the main to hold their own with experienced journeymen, while in certain cases they even excelled the journeymen in the latter part of their training period. The men who were thus taught trades were drawn principally from unskilled shipyard work and from manufacturing. The fact that these men could be adapted to specific trades in so short a time throws an interesting sidelight upon the amount of skill required in modern industry under the division of labor. One of the most notable contributions to the theory of vocational education was the fact that these men were trained on the job at actual processes under normal working conditions. Supervised by an instructor, they worked in groups alongside of other groups of experienced workmen. It is noteworthy that they did better work in these cases than when they were attached to "school hulls," that is, hulls upon which only learners were employed.

TABLE II
LENGTH OF TRAINING PERIOD FOR TWENTY TRADES IN TWENTY-ONE
YARDS, COVERING 9,700 MEN

Trade	Average Days for Each Trade	Trade	Average Days for Each Trade
Riveters.....	28	Machinists.....	39
Holders-on.....	14	Pipe fitters.....	39
Heaters.....	10	Regulators.....	12
Ship fitters.....	51	Gas welders.....	30
Chippers.....	28	Electric welders....	28
Drillers.....	13	Burners.....	23
Reamers.....	12	Punchmen.....	21
Bolters.....	10	Ship carpenters....	48
Linemen.....	8	Hand caulkers.....	34
Erectors.....	20	Tank testers.....	33

Other educational activities carried through by the Education and Training Section were (a) supplementary industrial training for journeymen by means of short courses on the principles of their trade; (b) technical education for members of the supervisory force; (c) electric welding, in which, through the efforts of the Education and Training Section, a new technique was developed, as well as instructors trained; and (d) foremen training.

It is not too much to state that the education and training carried through by the Fleet Corporation was a notable achievement in the field of vocational education.

7. HEALTH AND SANITATION

It is impossible to appraise fully and accurately the effect on production of the medical and sanitary measures that were fostered by the Industrial Relations Division to improve and maintain the physical welfare of shipyard workers. But the Health and Sanitation Section, which has now become a part of the Public Health Service, functioned effectively in dealing with the concrete problems facing it. The field sanitary engineers inspected the shipyards every thirty days. The section supervised and organized first-aid work for injured men and provisions for medical attention, dispensary and hospital facilities, medical inspection and quarantine. It improved the sanitation about the shipyards as to water supply, toilets, sewage disposal, bathing facilities, pure food, and mosquito extermination. State and local communities were directly induced to appropriate \$672,000 for exterminating mosquitoes in shipbuilding districts, and the mosquito nuisance was reported to have been virtually eliminated at Hog Island and at the shipyards of Chester, Pennsylvania, and Camden and Gloucester, New Jersey. Epidemics of smallpox and typhoid fever were successfully handled in seven localities, and vaccine and typhus serums were supplied to all yards when needed. Special aid was rendered during the influenza epidemic, and where the scourge threatened serious curtailment of shipbuilding temporary hospitals were erected.

A comprehensive survey of medical and sanitary conditions in shipyards has also been recently undertaken, with a view to having a basis of facts upon which to proceed henceforth. Much remains to be accomplished before adequate sanitary standards may be said to obtain in every shipyard, but the measures already pursued have been of decided educational and material advantage.

8. SAFETY ENGINEERING

The newness of the industry, the inexperience of the men and the management, and the haste with which shipyards were constructed and ships built would be expected to lead to a vastly increased rate of personal injuries to ship workers. In the early

months of the war, indeed, signs were not wanting that such was the case. The stories about the dangerous character of the work which were so widely circulated in the late months of 1917 and the early winter of 1918 were not wholly products of enemy propaganda. In many cases they but mirrored the true condition of affairs.

The work of the Safety Engineering Section in meeting this situation has been most notable. Although established in January, 1918, it was not until the creation of the Industrial Relations Division that its district organization was authorized and began to function. Prior to this time only 8 per cent of the shipyards had safety organizations. The district safety engineers made it their practice to begin by interesting the officials of a shipyard company. Central and departmental safety committees were then promoted, and in yards which were large enough safety engineers were appointed by the company. Safety conferences and committee meetings were held, at which the district safety engineers made addresses. Pamphlets were distributed and bill posters exhibited, all emphasizing the necessity of safety measures to the employees. Surveys of yard conditions were conducted, and standard safety specifications for plant construction and equipment were furnished to all yards. On January 1, 1919, over 70 per cent of the yards had safety organizations, or nearly a ninefold increase over the number six months before.

It is possible to compare the pre-war accident rates with those of the war period after safety measures had been partially set up. Chaney and Hanna's study of accident and accident prevention in marine building shows that in steel-ship yards in 1912 there were 217.8 accidents causing loss of a day's work or more for every 1,000 full-time workers per year, or 18.2 per month.¹ Statistics gathered for the last quarter of 1918 from twenty-four typical steel yards employing over 100,000 men show the following accident frequency per 1,000 workers in attendance per month:²

Month	Accident Frequency Rate
October	5.3
November	6.9
December	8.1

¹ *Accidents and Accident Prevention in Machine Building*, Bulletin 216, U.S. Bureau of Labor Statistics, p. 30.

² This includes men working in shipyards on both hulls and boilers.

These statistics show a decrease in accident frequency to a point slightly over one-third of the former rate.

The frequency rate computed on the same basis for forty-one wood-ship yards employing approximately 35,000 men was as follows:

Month	Accident Frequency Rate
October	9.5
November	11.4
December	9.1

It is important, however, not only to ascertain the decline in the frequency of accidents, but also to determine whether the relative severity of accidents decreased. As is well known, a standard weighting system for accidents has been devised by Dr. Chaney. A substantially similar one was used by the Safety Engineering Section, so that the results are comparable.¹ Dr. Chaney found that in steel-ship building in 1912 accidents caused a loss of eight days for every full-time worker per year, or 0.66 days per month.²

The accident severity rate per month during the last quarter of 1918 for the twenty-four steel-ship yards furnishes an interesting comparison with this:

Month	Accident Severity Rate (Days per Month)
October	0.791
November	0.401
December	0.444

It will thus be seen that the severity rates, with the exception of October, were substantially lower than in the pre-war period.

In the forty-one wood-ship yards, however, the record was not so favorable.

Month	Accident Severity Rate (Days per Month)
October	1.172
November	0.970
December	0.899

¹ If anything, the rating adopted by the Safety Engineering Section was slightly more severe.

² This should not be interpreted to mean that these days were actually lost during the specific year or month. It merely means that accidents which occurred during this time caused either during that year or in future years a loss of this amount of time. For instance, Dr. Chaney rates a death as 9,000 working-days. Thus the loss of time due to this accident would be spread over thirty years.

Although more detailed statistics are not available for months since December, 1918, the facts at hand seem to indicate that there has been a somewhat steady decrease in the frequency and severity of accidents. It seems probable that, as a result of safety measures, from 12,000 to 13,000 fewer accidents occurred during the last quarter of 1918 alone than would have occurred had the pre-war conditions existed.¹ Such a showing is all the more remarkable when the sudden expansion of the industry and the addition of nearly 300,000 "green men" is considered.

The reduction of accidents effected by the Fleet Corporation, however, not only saved many lives and much human loss but also materially reduced the labor cost to shipbuilding companies and thus to the Fleet Corporation. Sixty-nine shipbuilding companies were enabled to secure a reduction in their insurance premium because of the safety measures introduced at the instance of the Safety Engineering Section. This reduction totaled in all several millions of dollars.²

9. THE INSTABILITY OF LABOR

Table III and Chart I show the labor turnover from January to September, 1918, for 90 representative companies which in September employed 273,632 shipbuilders. The table shows the following:

a) That the turnover for the country as a whole was at an annual rate of over 200 per cent in practically every month. In some

¹ While reading the proof of this article, a further study by Dr. Chaney appeared which affords a basis for further comparison. Dr. Chaney, after a study of the 1917 accident rates in several long-established shipyards, finds that, though the accident frequency rates decreased from 217.8 for every 1,000 full-time workers per year as in 1912 to 60.9 in 1917, that the accident-severity rates increased from 6.6 to 10.8. It is probable that the newly established yards had a much higher frequency rate in 1917 and the early part of 1918 than these long-established yards and that their accident-severity rate was as high if not higher. The work of the Safety Engineering Section, therefore, appears to be even more effective than indicated above as respects the decrease in the severity of accidents, although it is possible that its influence in causing a decline in the frequency of accidents was not as great as might be expected from the 1912 figures. For the later study of Chaney's, see *Monthly Review*, Bureau of Labor Statistics, April, 1919, p. 16.

² As has been explained, the increased labor cost caused by the decisions of the Adjustment Board was ultimately paid for by the Fleet Corporation. The increase in wages necessitated a consequent increase in insurance premiums which was chargeable against the Fleet Corporation. A reduction of the insurance premium therefore decreased the amount which the Fleet Corporation was compelled to reimburse.

months it was as high as 300 per cent. In other words, it was necessary to hire from three to four men in a year in order to increase the working force by one.¹

TABLE III
TURNOVER PERCENTAGES FOR SHIPBUILDING EMPLOYEES
(Yearly Basis)

DISTRICTS	NO. OF YARDS REPORT- ING EVERY MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	NINE MONTHS
Steel-Ship Yards														
North Atlantic.....	7	202	165	178	195	168	170	196	243	225	180	177	210	194
Delaware River.....	6	189	204	146	153	183	199	170	224	257	176	180	214	193
Middle Atlantic.....	2	111	112	131	118	101	140	190	270	191	117	119	218	158
Southern.....	4	176	212	134	143	134	168	160	190	174	147	149	175	163
Gulf.....				No steel-ship building companies in this district										
Great Lakes.....	14	219	199	233	192	181	138	190	196	205	214	168	195	190
North Pacific.....	8	184	234	276	374	362	407	369	332	313	220	380	340	321
No. 11.....				No steel-ship building companies in this district										
South Pacific.....	4	262	320	371	248	237	250	270	244	198	317	246	238	256
Fabricating Yards...	3	287	205	213	114	131	277	257	543	705	220	195	489	447
All districts.....	48	201	216	226	216	205	229	235	298	242	212	216	251	231
Wood-Ship Yards														
North Atlantic.....	12	197	209	246	198	172	169	240	211	224	216	176	230	208
Delaware River.....				No wood-ship building companies in this district										
Middle Atlantic.....	2	163	217	55	161	90	134	231	112	79	117	122	145	134
Southern.....	4	276	82	146	209	197	221	360	217	276	151	204	284	240
Gulf.....	5	217	247	260	189	258	335	254	212	268	239	273	245	253
Great Lakes.....	1	190	35	46	189	138	0	359	404	348	87	122	406	162
North Pacific.....	6	197	172	281	263	271	247	249	263	235	210	260	248	245
No. 11.....	7	178	122	174	239	224	244	278	222	250	158	235	251	223
South Pacific.....	5	144	183	257	205	170	242	231	174	203	195	204	220	208
Fabricating Yards...				No wood-ship building companies										
All districts.....	42	192	176	222	218	214	234	266	220	242	194	223	244	226

Description of districts: (1) North Atlantic—all yards north of Newark, N.J.; (2) Delaware River—all yards on Delaware River; (3) Middle Atlantic—all yards on Chesapeake Bay, Potomac River, and Atlantic Coast from Baltimore, Md., to Wilmington, N.C.; (4) Southern—all yards from Wilmington, N.C., to Mississippi River; (5) Gulf—yards west of Mississippi on the Gulf; (6) Great Lakes—all yards on Great Lakes; (7) South Pacific—all California yards and those of Coos Bay, Ore.; (8) District 11—all wood-ship yards in Oregon and on Columbia River, save those of Coos Bay; (9) North Pacific—all wood-ship yards in Washington save those on the Columbia River (which are in District 11) and all steel-ship yards in Washington and Oregon.

¹ The method of calculating the labor turnover was as follows: The number of shipbuilding employees on the pay-roll for each week during each month was added, and the sum was divided by the number of weeks in the month. This method secured

b) The turnover for wood-ship yards was slightly less than that for steel yards.

c) The turnover for the three fabricating yards¹ was the highest of all types of construction, averaging 447 per cent for the nine months.

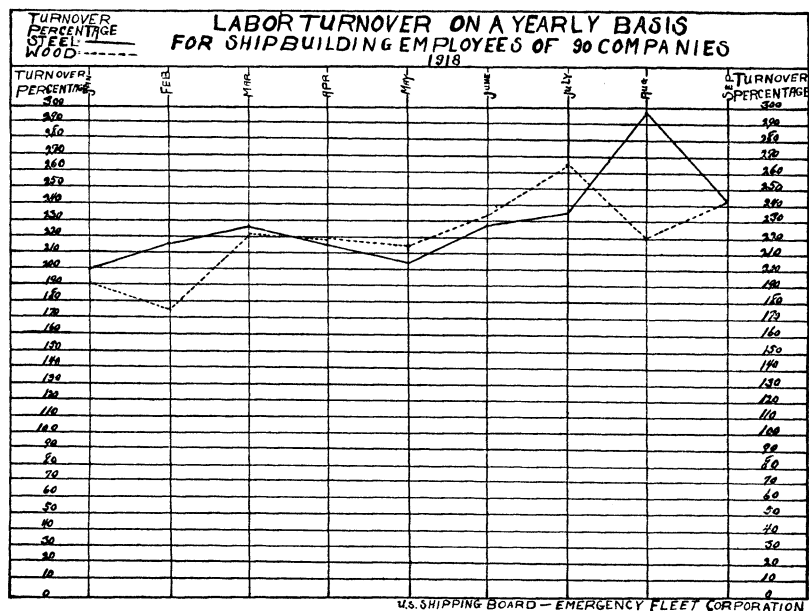


CHART I

d) The turnover was heaviest in the Pacific Coast yards and those north of Chesapeake Bay, while it was lightest in the yards of

the average number on the pay-roll. The average number of shipbuilding employees on the pay-roll was divided into the number of shipbuilding employees replaced during the month, giving the turnover percentage for the month. The monthly turnover percentage was reduced to a yearly basis for purposes of uniform comparison by multiplying the monthly percentage by the factor 10.4 (that is, 52 divided by 5) when 5 weeks were included in the month, and by 13 (that is, 52 divided by 4) when 4 weeks were included in the month. When the pay-roll was increasing, the number of men replaced would be the number lost from the pay-roll (in operations), while when the pay-roll decreased the number of men replaced would be the total number hired.

¹ Fabricating yards are so termed because there is no fabricating done at them! The parts are prepared at various other plants and shipped to these yards, where they are assembled. The term "assembling yards" would be much more accurate.

the Great Lakes and those of the Middle Atlantic district (Chesapeake Bay to Wilmington, North Carolina). It is not an accident that the districts where the turnover was the heaviest were those where there had been the greatest violation of the Macy scale and the heaviest competitive bidding for labor by the shipyards.

e) The turnover was lightest in the winter months and increased during the late spring, summer, and fall. It is difficult to tell whether this was purely a seasonal variation, or whether it was due to the competitive bidding for labor in excess of the established scale. This latter factor made the situation worse as time went on.¹

Turnover is not the only factor in the instability of labor. Though absenteeism is often confused with turnover, it is really a separate item. Absenteeism differs from turnover in that, while turnover represents a changing of positions, absenteeism represents the absence from a position while one is employed.

Table IV and Chart II show the percentage of attendance of all employees (not shipbuilders alone) in 90 representative companies. These companies employed over 320,000 workmen in September, 1918.²

It must be clearly realized that this percentage of absenteeism merely measures the number of full days lost. It does not include absenteeism resulting from (a) half-days absent and (b) tardiness.

¹ Dr. Boris Emmett's study in an automobile establishment indicates that the labor turnover in that plant uniformly increased during the spring and summer months and decreased during the winter. This may be due to the greater prevalence of employment during the summer months, which entices workmen from job to job, while in the winter they feel that they should hold on to whatever jobs they have. (See "Labor Turnover and Employment Policies of a Large Motor Vehicle Manufacturing Establishment," by Boris Emmett in the *Monthly Review of the United States Bureau of Labor Statistics*, VII, No. 4 (October 1918), pp. 1-18.

² The method of computing attendance figures was as follows: The average daily attendance for each week is calculated by adding the attendance for all the days of the week save Sunday, and dividing by 6. The ratio of this average daily attendance to the total number on the pay-roll expressed in percentage gives the average attendance. The difference between this and 100 per cent is the amount of absenteeism for the week. To reduce this to a monthly basis, a somewhat complicated procedure is followed, whereby four months during the year are treated as including five weeks and eight months as including four weeks, the aim being to make the weekly periods and the monthly periods coincide as evenly as possible. The percentage of attendance for the respective number of weeks in the month is added, and is then divided by the number of weeks, which gives the average attendance for the month.

The real amount of absenteeism, therefore, is probably greater than that indicated by the statistics given.

TABLE IV

AVERAGE PERCENTAGE OF PAY-ROLL IN DAILY ATTENDANCE FOR ALL EMPLOYEES

DISTRICTS	NO. OF YARDS REPORT- ING EVERY MONTH	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	NINE MONTHS
Steel-Ship Yards														
North Atlantic.....	7	67.9	68.0	71.0	73.0	78.1	79.1	79.7	83.3	78.3	69.0	77.0	80.4	76.3
Delaware River.....	6	73.8	78.5	84.7	85.4	84.2	86.8	84.0	85.7	81.2	79.1	85.4	83.6	83.1
Middle Atlantic.....	2	64.1	72.1	77.1	76.4	78.7	82.3	77.2	74.6	80.2	71.3	79.3	77.3	76.5
Southern.....	4	89.1	89.4	84.6	80.5	84.6	84.1	86.3	86.4	85.9	87.3	83.4	86.2	85.5
Gulf.....		No steel-ship building companies in this district												
Great Lakes.....	14	79.4	79.4	83.1	84.5	83.7	88.8	86.0	86.5	83.8	79.9	85.6	85.4	84.2
North Pacific.....	8	72.0	89.5	88.2	88.9	89.5	87.7	85.1	85.6	83.3	90.1	88.7	84.7	87.6
No. 11.....		No steel-ship building companies in this district												
South Pacific.....	4	90.9	88.1	87.9	88.8	90.5	92.5	88.8	94.0	82.5	88.7	90.7	88.4	89.3
Fabricating Yards.....	3	61.5	73.5	77.4	73.9	82.2	87.2	83.4	80.3	82.2	69.8	81.5	82.0	78.4
All districts.....	48	74.0	78.3	81.1	81.0	84.0	86.6	83.9	84.8	81.7	77.7	84.0	83.5	82.2
Wood-Ship Yards														
North Atlantic.....	12	79.3	76.7	83.1	84.0	86.2	87.8	86.8	88.6	80.5	80.0	86.3	85.5	84.9
Delaware River.....		No wood-ship building companies in this district												
Middle Atlantic.....	2	60.0	77.1	76.5	74.7	79.1	79.9	78.1	83.8	79.2	74.3	78.6	80.0	78.7
Southern.....	4	78.2	79.0	83.8	80.7	79.9	86.4	80.1	81.4	77.9	80.6	82.6	79.7	80.9
Gulf.....	5	74.0	80.4	82.8	85.0	83.7	80.5	80.0	78.4	77.8	79.5	83.1	78.8	80.6
Great Lakes.....	1	81.4	74.2	95.3	92.6	85.9	89.7	98.3	100.0	99.7	82.5	89.2	99.2	88.6
North Pacific.....	6	90.7	89.0	90.1	90.5	93.0	92.7	91.1	94.3	90.4	89.9	92.3	91.8	91.6
No. 11.....	7	91.9	90.9	90.7	91.4	91.7	92.5	89.3	93.3	92.4	91.1	91.9	91.5	91.6
South Pacific.....	5	90.2	87.2	89.1	90.1	93.2	94.2	92.7	95.1	92.6	88.9	92.6	93.4	92.0
Fabricating Yards.....		No wood-ship building companies												
All districts.....	42	84.7	84.1	86.8	87.2	87.8	88.6	86.5	88.7	84.8	85.3	87.9	86.6	86.8

The following facts appear from Table IV:

a) That the percentage of days lost per month for the country as a whole ranged in steel-ship yards from 26 to 13.3 per cent, and in wood-ship yards from 15.9 to 11.4 per cent. The average absenteeism for the nine months in the steel-ship yards was 17.8 per cent, in the wood-ship yards, 13.2 per cent.

b) That absenteeism was approximately 25 per cent less in the wood-ship yards than in the steel-ship yards.

c) That absenteeism was higher in the winter months than in the spring and summer. This was particularly true of the steel yards. Climatic reasons were undoubtedly a large factor.

d) That absenteeism is highest in the yards of the Northern Atlantic states and lowest in those of the Pacific Coast. Here again it is probable that the equable temperature of the Pacific Coast was responsible in a large part for the better showing made by these yards.

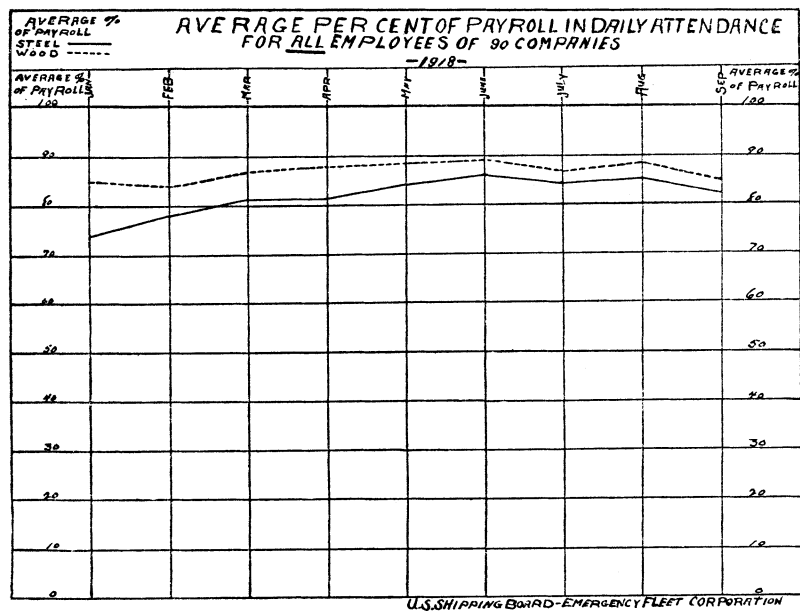


CHART II

IV. EVALUATION OF RESULTS

I. PRINCIPLES UNDERLYING THE LABOR POLICY OF THE FLEET CORPORATION

Had the managers of the Fleet Corporation been asked, "What is the philosophy upon which your rulings and policies are based?" they would probably have replied, "We have none. We are here to build ships." Speed was their aim. They wanted results. The multitude of question that poured in upon them were decided, therefore, in the light of this purpose and not by a priori theories. From the accumulation of their decisions, however, the student can detect certain fundamental principles being crystallized

and an inductive industrial philosophy being formed, of which the promulgators themselves were almost unconscious.

There were really two basic principles upon which the labor policy was based, the implications of which were perhaps grasped by only a few: (a) The first of these was that the hearty support and co-operation of labor was necessary to attain any modicum of success. (b) The second was that the ordinary peace-time method of competition between shipyards was not only inadequate to build the necessary ships under war conditions but was on the whole an actual impediment.

Shipbuilding in war time demonstrated the importance of the worker. It was possible in peace time, with the plentiful labor supply, to take less account of labor, but it was impossible in war, for the success of the whole program depended largely upon the zeal and efficiency of the laboring-men. The Fleet Corporation could not wash its hands of its labor problem by delegating its responsibility to its contractors, and could secure the co-operation of labor, not by autocratic commands, but only by taking the workers into its confidence and by jointly sharing with them the settlement of their problems. The creation of the Shipbuilding Labor Adjustment Board was the most important recognition of this truth which any great industry in America has ever made, and throughout the administration of labor matters by the Fleet Corporation it was found absolutely essential to secure the co-operation of the workers themselves. Many of the charges that the workmen have been "coddled" come from those who do not understand the significance of labor which the war has revealed. Such statements are based upon the implicit belief that the workers should do what is ordered by economically stronger classes, and that they should be servants of the state but not members of the state.

The other basic principle, namely, the supplementing and restraining of competition, did not manifest itself so quickly, but it emerged after a time as a necessity.

It was necessary to supplement competition, because the work performed by the Education and Training, the Safety Engineering, and the Health and Sanitation sections, together with the

Employment Management Branch and other agencies of the Corporation, would never have been performed by the shipbuilders themselves, for the following reasons:

a) While it was for the interest of the industry as a whole that these facilities should be provided, it need not have been for the interest of any particular yard to perform these functions. If an employer, for instance, provided training for his men at his own expense, there was every likelihood that some other shipyard which had not undergone the expense of training men would offer these men, once trained, more than their original employer could pay and would thus entice them away. The offering of these advantages by a central agency, such as the Fleet Corporation, however, relieved any individual yard of the burden and extended these facilities to the industry as a whole. Though the movement of newly trained men from yard to yard still continued, nevertheless the industry as a whole possessed these trained workmen, a gain which would hardly have materialized had the Fleet Corporation depended upon the initiative of individual employers to furnish them.

b) It was necessary for the Fleet Corporation to provide these services, not only because it was not to the economic interest of individual shipyards, but also because of the ignorance on the part of many shipbuilders of what was actually to their economic interest. It was not easy for the owners to understand that good health, safety measures, and efficient employment methods meant an increased output. The Industrial Relations Division performed valuable educational work in impressing the necessity for these measures upon indifferent and even hostile concerns.

c) By reason of the nation-wide extent of the organization, improvements in matters relating to labor could be pooled and then quickly extended to all other plants instead of being confined to a few. Illustrations of this can be drawn from such diverse items as the invention of an appliance which lessened the vibration in riveting, methods of managing plant cafeterias, and a plan devised by one district representative of organizing shop committees.

The officials of the Corporation slowly learned, moreover, that competition must be restrained as well as supplemented. This was first learned in the supplying of raw material to the shipyards.

It was necessary to centralize the purchasing and distribution of steel, of lumber, and of other materials, because each plant tried to "play safe" and accumulated more than it needed. Some yards were consequently unable to get the raw materials that they needed. It became almost equally necessary to restrain the competitive methods of attracting labor. The treating of the Macy rates as maxima as well as minima was only one step in the attempt to prevent firms from enticing labor from other shipyards. The Corporation expressly forbade a concern to take men intentionally from other yards, it used all its influence to punish yards which had so offended, and it tried to bring about the return of the men who had been enticed away.

In the fall of 1918 the Corporation found it necessary to regulate advertising for labor, which many concerns were conducting injudiciously, and it issued a General Order regulating advertising, which is perhaps unique. By it shipyards were forbidden to state any special advantages in the form of wages or working conditions and were required to state that they would not employ anyone working in another shipyard.¹

2. DEFECTS AND MERITS

So great was the necessity for haste that it is small wonder mistakes were made in building up from nothing a system of labor administration and control. Rather is it remarkable that the mistakes were upon the whole so few, and that the conspicuous merits far outweighed them; but both mistakes and merits alike are of distinct service in pointing out what labor policy a nation should pursue in war time and in peace time as well.

Among the most important defects were:

a) Delay in setting up an adequate administrative machinery to enforce the rates authorized by the Shipbuilding Labor Adjustment

¹ The restrictions imposed were as follows:

a) Every advertisement whether for skilled or unskilled labor must contain the following statements: "No one working in an Emergency Fleet Shipyard should apply. Wages and working conditions are the same in all such shipyards."

b) No advertisement whether for skilled or unskilled labor shall state (1) number of men needed; (2) rate of pay; (3) the amount of overtime or rate of compensation for overtime; (4) housing, welfare work, or similar inducements; (5) inducements in violation of the wages and standards fixed by the Shipbuilding Labor Adjustment Board.

Board. It is perhaps an American characteristic to enunciate a policy and then neglect to provide machinery to see that it is carried out. The Fleet Corporation and the Adjustment Board shared in this American vice. A more thorough organization with several full-time men in each district should have been created early. The Corporation was relatively slow to realize the necessity for a separate system of labor control with administrative decentralization. Had this been in existence earlier, the violations, both those above and those below the Macy rates, would have been fewer.

b) A rather loosely administered system of reimbursement for added labor cost. There can be little question that many yards were reimbursed, temporarily at least, for amounts in excess of the actual Macy scale. This was partially caused by a shortage of competent accountants, which rendered the work of detecting these amounts more difficult, and the necessity for training more and better accountants was thereby sharply emphasized.

c) A too liberal contract system. Though the contracts for the Fleet Corporation probably protected the government more than those of other government departments, yet many were unduly favorable to the contractor. The cost plus percentage contracts, the number of which became fewer as time went on, directly encouraged extravagance in labor matters upon the part of the contractor, while the cost plus fixed fee contracts and agency contracts, where the Fleet Corporation bore all the expense, did not sufficiently discourage such extravagance. Costs were often unduly swollen, and an extravagant attitude was created toward labor matters.

d) Failure to provide an adequate labor-requirements machinery. The Fleet Corporation should have established relatively early a staff to estimate the labor requirements of the various yards and the country as a whole, concerning the number and kinds of men needed at varying periods of time. This should have been roughly computed from the estimated production program as it varied, although the uncertainties in the program would have rendered the work exceedingly difficult. Such estimates could have been checked up by estimates from the yards themselves. This system would have furnished the United States Employment Service with an accurate list of labor requirements and would

have guided the various activities of the Corporation, as, for instance, the Education and Training Section and other sections. Had such a section been in existence the Shipyard Volunteers' fiasco might have been avoided. It is only fair, however, to say that such a centralized system of labor requirements had never been created in the country, and it is not wholly proper to reproach the officials of the Corporation for having failed to create such machinery *de novo*.

e) Failure to acquaint all groups with the real policy of the Fleet Corporation and Adjustment Board. In a country as large as the United States the co-operation of all parties cannot be obtained merely by the action of committees representing both sides. It is vitally important to educate and inform the rank and file of both employers and employees as to the reasons for and necessity of the policies and methods adopted.

The fundamental merits of the work must also be remembered, however:

a) The necessity of recognizing the principle of collective bargaining and of granting labor a voice in the determination of its own conditions was demonstrated beyond a doubt.

b) For the first time a great government industry realized the necessity for a separate and co-ordinate organization to deal with labor problems.

c) It was shown that industrial disputes not only should be settled after the fact but should be headed off by a thorough examination into and removal of the basic causes of labor unrest. Not only did this policy prevent interruption in production, but it increased the efficiency of the men while at work.

d) The industry was viewed as a whole, and measures were taken to supply the needs of all plants, instead of depending upon the self-interest of the individual contractor to furnish the services for the industry.

e) The principle of basing wages upon increase in the cost of living was officially recognized and applied throughout an important industry. Whatever may be the inadequacies in merely maintaining the *status quo* of a standard of living which may have originally been too low, there can be no question that it was a big improvement

over what would have happened had the market system of adjusting wages been followed, with all its accompanying friction. Had not the Fleet Corporation interposed, there is little doubt that the standard of living, instead of being maintained, would have been impaired.

f) During the period after the Shipbuilding Labor Adjustment Board and the Industrial Relations Division were functioning and prior to the signing of the armistice, there were no strikes or lockouts, save of momentary character, in yards doing work for the Fleet Corporation.¹ Industrial peace was thus roughly attained. This should not be understood to mean that there were no rumblings of discontent, but merely that no actual interference with production occurred during hostilities. When the temper of both employers and workmen is considered, this is perhaps the most outstanding proof of the success of the efforts of the shipyard labor administration. There can be little question that had it not been for the Labor Adjustment Board and the Industrial Relations Division the tonnage built would have been less by several hundred thousand tons.

V. THE FUTURE

The Shipbuilding Labor Adjustment Board, though its duration was not limited by either of the memoranda creating it, was dissolved on April 1. During the months of February and March many efforts were made to devise some machinery to take its place. The peace-time problem is naturally different from that of war, if for no other reason than that the shipyards will soon be producing primarily for private and not for government account. By July 1 of this year the wood-ship yards will be practically through with Fleet Corporation work, while 30 per cent of the steel-ship yards formerly occupied on government work will be freed for private construction. By December, 1919, over 60 per cent of the steel-ship ways will so be free.²

¹ The Seattle shipyard strike which led to the general strike occurred January 21, 1918. This is a story in itself. The settlement was in strict accord with the principles which governed the Shipbuilding Labor Adjustment Board and the Industrial Relations Division.

² The prohibition upon the building of steel ships for foreign account has not as yet been raised, but it is expected that it will be very shortly.

The Emergency Fleet Corporation therefore could no longer presume to act for the builders as it had been compelled to do during the war. The shipbuilders themselves, who had not been parties to the formation of the Board, were the only ones who could enter into a general agreement with the unions.

After a series of conferences it seems to be undoubted that several boards will replace the Adjustment Board. After a stormy two weeks' conference in Washington between representatives of the local unions and employers from the Pacific Coast, together with representatives of the international unions and the Fleet Corporation, an agreement was drawn up providing for the creation of a board for the Pacific Coast with ten members, with a continuation of the principal conditions established by the Adjustment Board, save that the 44-hour week was established for the entire year, and not merely for the summer months, as at present. The board, if constituted, will have power over wages, hours, conditions of labor, classification, grievances, etc. The local coast unions will undoubtedly have a larger voice in representing labor on this board than the international unions, and thus one cause of friction will be removed. This agreement has been approved by the employers and will be voted upon by the local unions, by whom it will undoubtedly be rejected.

Although some employers on the Atlantic Coast and Great Lakes are refusing to sign collective agreements with the American Federation of Labor, it is probable that the vast majority of them will do so. The American Shipbuilding Company, a concern with six yards on the Great Lakes, has already signed such an agreement. The two agency yards of the Fleet Corporation (the American International Shipbuilding Corporation at Hog Island and the Merchant Shipbuilding Corporation at Bristol, Pennsylvania), have also signed such an agreement, as have the various plants of the Bethlehem Shipbuilding Company. Many others are about to fall in line and it is probable that from these individual agreements district boards for the Atlantic Coast and Great Lakes will ultimately be built up.

Until some machinery is set up and functioning the Emergency Fleet Corporation will maintain the rates and conditions of labor established by the Adjustment Board and will probably use these

rates as the basis of reimbursement for all its contract settlements, although of course yards may out of their profits pay the workmen more than the scale.

Whatever boards are set up will be based upon and will take over the principles and policies established by the Labor Adjustment Board and the Industrial Relations Division. Thus in this newest of industries, perhaps chiefly because of the lack of long-established business inertia, the governmental policies evoked under the stress of war-time pressure are to be taken over as the basis for future peace-time action. One, at least, of war's gains is apparently to be made permanent.

P. H. DOUGLAS

Emergency Fleet Corporation

F. E. WOLFE

Ohio Wesleyan University